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EXAMINER

PHAM, HUNG Q

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/775,749	Applicant(s) PELTONEN ET AL.	
	Examiner HUNG Q. PHAM	Art Unit 2169	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 June 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,5,7-14,16-21,23-27 and 29-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,5,7-14,16-21,23-27 and 29-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

Applicant's arguments with respect to the rejection under 35 U.S.C. § 102(e) have been considered but are moot in view of the new ground(s) of rejection.

Duplicate Claims, Warning

Applicant is advised that should claim 1 be found allowable, claim 11 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-3, 5, 8-14, 18-21, 23-27 and 30 are rejected under 35 U.S.C. 102(e) as being anticipated by Stephan [USP 7,149,748 B1].

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Regarding claims 1, 9, 10, 11, 21, 23, Stephan teaches a method, program and system for facilitating full text searching of a set of data, the method comprising:

obtaining keyword data corresponding to a set of data (Col. 4 Lines 36-48, common terms and no common terms as *keyword data* corresponding to a collection of documents as *a set of data* is obtained);

generating an inverted keyword index and a separate inverted keyword attribute index corresponding to the keyword data (EXPANDED INVERTED INDEX is considered as being equivalent to *inverted keyword index* (Col. 5 Lines 35-58), INVERTED LIST is considered as being equivalent to *a separate inverted keyword attribute index* (Col. 4 Lines 49-55). The EXPANDED INVERTED INDEX and INVERTED LIST correspond to common terms and no common terms),

the inverted keyword attribute index including information from at least one category within a group consisting of language information, sentence information, ranking information, document timestamp information, and metadata information (The INVERTED LIST includes *metadata information*, e.g., document identifier, frequency of occurrences of terms... (Col. 4 Lines 55-63));

storing the inverted keyword index and the inverted keyword attribute index in a shared process memory (Col. 6 Lines 35-42);

obtaining a keyword query from a first process (Col. 6 Lines 55-60); and

processing the keyword query using the inverted keyword index and the inverted keyword attribute index stored in the shared process memory (Col. 7 Lines 1-39).

Regarding claims 2, 12 and 24, Stephan teaches all of the claimed subject matter as discussed above with respect to claims 1, 11 and 23, Stephan further discloses *the set of data corresponds to a set of documents* (Col. 4 Lines 36-48).

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Regarding claims 3, 13 and 25, Stephan teaches all of the claimed subject matter as discussed above with respect to claims 1, 11 and 23, Stephan further discloses *the set of data corresponds to a set of rows in a database* (Col. 6 Lines 27-32).

Regarding claims 5, 14 and 27, Stephan teaches all of the claimed subject matter as discussed above with respect to claims 1, 11 and 26, Stephan further discloses *the inverted keyword attribute index corresponds to keyword occurrence information in the set of data* (Col. 5 Line 64-Col. 6 Line 8).

Regarding claims 8, 20 and 30, Stephan teaches all of the claimed subject matter as discussed above with respect to claims 1, 11 and 24, Stephan further discloses *storing the inverted keyword index includes dynamically adjusting memory pointers corresponding to the inverted keyword index* (Col. 4 Line 63).

Regarding claim 18, Stephan teaches all of the claimed subject matter as discussed above with respect to claim 11, Stephan further discloses the steps of *obtaining a keyword query from a process*; and *processing the keyword query from the inverted keyword index in the shared memory buffer* (Col. 6 Lines 55-60 and Col. 7 Lines 1-39).

Regarding claim 19, Stephan teaches all of the claimed subject matter as discussed above with respect to claim 18 Stephan further discloses the steps of *obtaining a second key word query from a second process*; and *processing the keyword query using the inverted keyword index and the inverted keyword attribute index stored in the shared memory buffer* (Col. 6 Lines 55-60 and Col. 7 Lines 1-39, this is an inherited feature when another query is processed).

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Regarding claim 26, Stephan teaches all of the claimed subject matter as discussed above with respect to claim 23, Stephan further discloses *the shared memory buffer includes the inverted keyword attribute index corresponding to each node in the inverted keyword index* (Col. 4 Line 34-Col. 5 Line 62 and Col. 6 Lines 35-42).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 7, 16, 17 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stephan [USP 7,149,748 B1] in view of Snyder [USP 7,069,272 B2].

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Regarding claims 7, 16 and 29, Stephan teaches all of the claimed subject matter as discussed above with respect to claims 1, 11 and 26, but fails to teach *the inverted keyword index and the inverted keyword attribute index correspond to red and black index trees.*

Snyder teaches red and black index trees for a table to facilitate the search (Snyder, FIG. 3).

Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to use red black trees as taught by Snyder for storing EXPANDED INVERTED INDEX and INVERTED LIST to facilitate the search.

Regarding claim 17, Stephan and Snyder, in combination, teach all of the claimed subject matter as discussed above with respect to claim 16, Stephan further discloses (a) *obtaining the first keyword from the set of data; (b) inserting the keyword into the inverted keyword index; (c) inserting keyword attribute data corresponding to the keyword into a temporary keyword attribute index; (d) repeating (a)-(c) for all keyword data in the set of data; and (e) converting the temporary keyword attribute index into the inverted keyword attribute index in the shared process memory buffer* (Stephan, Col. 4 Line 34-Col. 5 Line 62 and Col. 6 Lines 35-42).

Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Stephan [USP 7,149,748 B1] in view of Aridor et al. [USP 7,043,472 B2].

Regarding claim 31, Stephan teaches all of the claimed subject matter as discussed above with respect to claim 23, Stephan further discloses *a disk subsystem for storing at least a portion of the inverted keyword index of a set of data* (Col. 6 Lines 33-42) but fails to teach *and a merge process for merging the inverted keyword index in the shared memory with the portion of the inverted keyword index in the disk subsystem.*

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Aridor teaches *a merge process for merging the inverted keyword index in the shared memory with the portion of the inverted keyword index in the disk subsystem* (Aridor, Col. 9 Lines 28-30).

Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to have a merge process for merging the inverted index in order to have a integrated inverted index for a federated system.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HUNG Q. PHAM whose telephone number is 571-272-4040. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, JAMES K. TRUJILLO can be reached on 571-272-3677. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/HUNG Q. PHAM/
Primary Examiner
Art Unit 2169

September 06, 2008